Verification of the Bubble Column Method

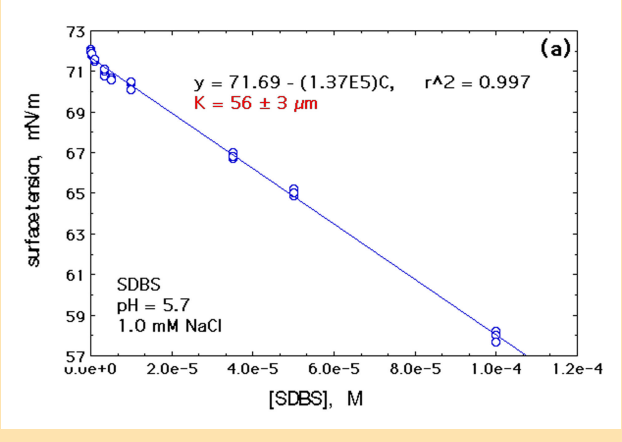
The bubble column method was tested by comparing the K value obtained from the bubble column method through Eq. (5), with the K value from surface tension measurements through Eq. (6), for dilute surfactant solutions of sodium dodecyl benzene sulfate (SDBS).

Rearranging Eq. (4) gives

$$K = \frac{AD}{afz} \ln \frac{C(z)}{C_b} \qquad (5)$$

Combining Eq. (1) and Eq. (3) gives

$$K = \frac{-1}{RT} \frac{d\gamma}{dC} \qquad (6)$$



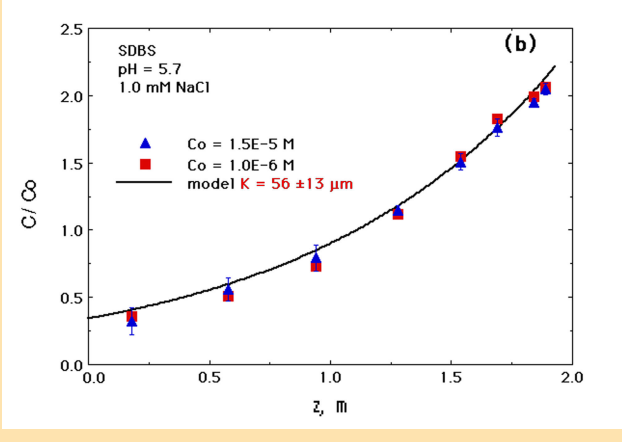


Fig. 3. Testing the bubble column method on SDBS solutions. (a) K = 56±3 μm, from surface tension measurements. (b) K = 56±13 μm, from the bubble column method. This agreement validated the bubble column method.